

Baseline Assessment of Health Outcomes Measures 8-9:

Follow-Up Test for a Failed Newborn Hearing Screen, SFY 2007
Developmental Screening/Testing, SFY 2007

Corrective Action Order Health Outcomes Measures



2009 Baseline Assessment

Center for Strategic Decision Support
Financial Services Division

TEXAS HEALTH AND HUMAN SERVICES COMMISSION

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Introduction

In July 2008, Plaintiffs and Defendants agreed on two indicators that measure important aspects of the Early Periodic Screening, Diagnosis, and Treatment (EPSDT) Program population's health. These indicators were,

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Data Notes

The study period for these indicators was State Fiscal Year (SFY) 2007. All studies have been stratified by race/ethnicity and by service delivery type/area. Data sources, including Medicaid enrollment data, administrative claims data and HMO encounters data, have been described in previous reports.

Small Cell Numbers:

Rates and percentages based on a small number of events are sensitive to random variation and may fluctuate dramatically from year to year, or differ considerably from one area to another area, even when there is no meaningful difference. In this report, numerator and denominator data are given regardless of the number of events; however, rates and percentages based on small numbers (< 30) are not calculated and warnings to interpret the data cautiously are issued in the footnotes.

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Indicator 8: Follow-Up Test for a Failed Newborn Hearing Screen

Definition: Percentage of THSteps newborns referred for an outpatient follow-up hearing test who received the test.

Study Population (Denominators)

Newborn Hearing Screening data are collected by the Texas Early Hearing Detection and Intervention (TEHDI) data reporting system. Births that require(d) screenings, which exclude deceased, very ill, and refused are categorized according to status (In Process, Birth Screen Complete, Missed Birth Screen, and Infant Needs Follow-up Services) and/or outcome (Bilateral Pass, and Unilateral or Bilateral Refer).

Infants born in SFY 2007 whose birth screen status was missed, or whose outcome was unilateral refer, bilateral refer or not indicated due to medical exclusion were referred for further testing. These records were obtained from TEHDI (n=15,270 infant records). Because the baby's first name was missing for over half of the TEHDI records (often substituted for nicknames such as "baby boy" or "baby girl") and for an additional 25% of the records, the mother's first name was listed instead of the baby's, probabilistic record linkage using *The Link-King* software was not feasible.

Character string matches between variables that were available in both the TEHDI dataset and the Texas Vital Statistics Unit (VSU) Birth Certificate File (such as the birth hospital, Primary Contact's (mother/father) first and last name, infant's gender, date of birth, and, if available, the infant's first and last name) were used to identify potential record pairs. This process yielded 9,613 record pairs, which were then merged with a previously created, linked Medicaid-VSU crosswalk¹ so that only infants who were known to be Medicaid clients were included in the denominator. The total number of distinct THSteps clients identified from the TEHDI data was 5,713.

Study 1: Follow-up Testing

Follow-up tests among newborns who were referred for an outpatient follow-up were identified based on either a report to the TEHDI system, or a record in the administrative claims and/or HMO encounter data indicating that follow-up services were provided to the client. Among the 5,713 identified THSteps clients who were referred for an outpatient follow-up, 2,992 received a follow-up screening. Of these, 113 (3.8%) of the screens occurred beyond the 95 day mark and are not included in the numerator. The remaining 2,879 follow-up screens are displayed in Table 8.1.

¹ Methods were previously reported. Refer to, "Baseline Assessment of Health Outcome Measures 1-7" Indicator 1-Prenatal Care/Risk Appropriate Care, Page 3.

Table 8.1: THSteps newborns referred for an outpatient follow-up hearing test who received the screen within 95 days, Texas Medicaid, SFY 2007

	Study Population	Number of clients receiving a follow-up test	Percent of clients receiving a follow-up test
Race/Ethnicity			
White, non-Hispanic	1,222	583	47.7
Black, non-Hispanic	652	276	42.3
Hispanic	3,713	1965	52.9
Other/Unknown	126	55	43.7
Service Delivery Type/Area			
FFS	1,892	964	51.0
PCCM	1,752	825	47.1
Managed Care	2,069	1,090	52.7
Bexar	333	129	38.7
Dallas	262	94	35.9
El Paso	149	108	72.5
Harris	680	415	61.0
Lubbock	208	92	44.2
Nueces	200	123	61.5
Tarrant	125	84	67.2
Travis	112	45	40.2
Total	5,713	2,879	50.4

Results of Follow-up Testing

It is not possible to ascertain from the administrative claims and HMO encounter data or from TEHDI System data, the result of follow-up audiological hearing tests. Therefore, the proportion of THSteps newborns that failed the audiological hearing test and require further evaluation and amplification intervention is unknown. Hearing loss rates among infants is estimated to be about 2 to 3 out of every 1000 newborns.²

Although it is not possible to assess the percentage of newborns who require further evaluation and intervention, it is possible to report the number of THSteps clients that received a hearing aid during the study period and then attempt to determine whether or not they failed their newborn hearing screening.

Claims for services related to hearing aids are submitted to the Texas Department of State Health Services, Newborn Screening Unit³. The Program for Amplification for Children of Texas (PACT) collects information on the intervention history for each child in Medicaid who receives hearing aid services. A total of 1,593 THSteps clients were identified as having been dispensed a hearing aid in SFY 2007. The PACT data did not indicate whether the service provided in SFY 2007 was for the *first* hearing aid that the client had ever received or if the hearing aid dispensed was as a replacement or refitting. For that reason, data concerning older age groups should be interpreted with caution.

Among the total number of clients receiving a hearing aid in SFY 2007, 161 (10.1%) were below the age of 18 months at the time of the fitting and were considered for eligibility in Study 2, while 1,432 were between the ages of 18 months and 21 years and were considered for eligibility in Study 3.

Study 2: Infant Follow-up and Case Management

Among the clients below the age of 18 months whose records showed that they received a hearing aid in SFY 2007, 2 were excluded from the analysis because they did not have continuous enrollment between the time of their birth screen and hearing aid fitting. Clients were assigned to the service delivery type/area in which they were enrolled at the time of the fitting. Age groups were calculated as the number of months between the fitting and the clients date of birth.

² National Institute on Deafness and Other Communication Disorders.
<http://www.nidcd.nih.gov/health/statistics/quick.htm>. Accessed on Dec. 8, 2009.

³ Note: As of September 1, 2009, the Program for Amplification for Children of Texas (PACT) is no longer administered by the Department of State Health Services (DSHS). The hearing services benefits administered through PACT have been transitioned to the Health and Human Services Commission (HHSC) and are administered by the Texas Medicaid & Healthcare Partnership (TMHP).

Table 8.2: THSteps Clients, age 18 months and younger, who received a hearing aid in the study period and the percent of whom failed their inpatient newborn hearing screening – Texas Medicaid, SFY 2007

	THSteps Clients* receiving hearing aid in SFY 2007	Number and percent who failed their inpatient newborn hearing screen	
		N	%
Age Group			
0 to 6 months	56	39	69.6%
7 to 9 months	31	17	*
10 to 12 months	26	9	*
13 to 18 months	46	9	*
Race/Ethnicity			
White, non-Hispanic	24	12	*
Black, non-Hispanic	10	4	*
Hispanic	91	44	48.4%
Other/Unknown	34	14	*
Service Delivery Type/Area			
FFS	41	16	*
PCCM	27	8	*
Managed Care	91	50	54.9%
Bexar	4	1	*
Dallas	14	4	*
El Paso	15	10	*
Harris	42	23	*
Lubbock	5	4	*
Nueces	4	2	*
Tarrant	7	6	*
Total	159	74	46.5%

* Includes only those clients who were continuously enrolled in Medicaid between their inpatient screen and hearing aid fitting (with one allowable gap of one month).

* = Not Reported. Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Study 3: Early Childhood Follow-up and Case Management

Among the clients older than 18 months whose records showed that they received a hearing aid in SFY 2007, 440 (30.8%) were excluded from the analysis because they did not have continuous enrollment between the time of their birth screen and hearing aid fitting. Another 743 (51.9%) were excluded because they were born before the beginning of SFY 2001 (September 1, 2000), before statewide data on birth hearing screenings were collected. Clients were assigned to the service delivery type/area in which they were enrolled at the time of the fitting.

Table 8.3: THSteps Clients, age 18 months and older, who received a hearing aid in the study period and the percent of whom failed their inpatient newborn hearing screening – Texas Medicaid, SFY 2007

	THSteps Clients ⁺ receiving hearing aid in SFY 2007	Number and percent who failed their inpatient newborn hearing screen	
		N	%
Race/Ethnicity			
White, non-Hispanic	40	13	*
Black, non-Hispanic	27	11	*
Hispanic	141	35	24.8%
Other/Unknown	41	12	*
Service Delivery Type/Area			
FFS	96	26	*
PCCM	50	11	*
Managed Care	103	34	33.0%
Bexar	6	0	*
Dallas	17	6	*
El Paso	9	3	*
Harris	46	19	*
Lubbock	3	0	*
Nueces	4	1	*
Tarrant	14	3	*
Travis	4	2	*
Total	249	71	28.5%

⁺ Includes only those clients who were continuously enrolled in Medicaid between their inpatient screen and hearing aid fitting (with one allowable gap of one month).

* = Not Reported. Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Indicator 9: Developmental Screening/Testing

Definition: Percent of THSteps clients at risk for developmental delays who receive developmental screening.

Study Population (Denominators)

Separate studies were conducted based on clients whose claims history indicated that they might be at high risk for developmental delays.

The first risk category included Medicaid infants born who were identified as having had a very low birth weight (VLBW) defined as a birth weight less than or equal to 1,500 grams. Two denominators were calculated for the VLBW risk group. Denominator 1a was comprised of infants who were born during SFY 2007 (between September 1, 2006 and August 31, 2007). Among the 3,954 VLBW infants that had already been identified for a previous Health Outcomes Measure Study, 998 were excluded from the analysis because they were not continuously enrolled for at least 12 months following their birth.⁴

Denominator 1b was comprised of VLBW infants who were one and two years old in SFY 2007. The CY 2004 through 2006 Texas Vital Statistics Unit (VSU) Birth Certificate files were used to select all newborns with a birth weight of less than 1,500 grams and then link them with the 8-month enrollment file to identify Medicaid clients. The linkage process was performed by *The Link-King* software, a public domain SAS-based application for probabilistic record linkage. Of the 11,694 infants born between September 1, 2004 and August 31, 2006 who were identified in the VSU data as VLBW, 7,440 (63.6%) were identified as Medicaid enrolled. Of them, 5,338 (71.7%) were enrolled for at least one month in SFY 2007 and therefore contributed to Denominator 1b. This denominator was calculated in member years, which is the sum of the months enrolled in SFY 2007 for all of the qualified infants, divided by 12.

The second risk category included Medicaid children, ages from birth up to 3 years old, who have been identified – using administrative claims and HMO encounters data – as having a diagnosis that would qualify them for Early Childhood Intervention (ECI).⁵ Clients were included in the denominator if an ECI diagnosis code was present as the primary diagnosis or as one of five listed secondary diagnoses. Clients with ECI diagnoses whose date of birth did not fall between September 1, 2004 and August 31, 2007 were excluded from the analysis. This denominator was also calculated in member years.

⁴ Refer to, "Baseline Assessment of Health Outcome Measures (1-7)." The identification of VLBW infants born in SFY 2007 was performed for Indicator 1, Study 2 – Risk Appropriate Care (Page 5).

⁵ <http://www.dars.state.tx.us/ecis/resources/diagnoses.asp>

Table 9.1: Clients meeting the diagnosis and age requirements for the study population – Texas Medicaid, SFY 2007

	Denominator 1a [*] Number of clients	Denominator 1b [†] Number of clients	Enrollment Months	Denominator 2 [‡] Number of clients	Enrollment Months
Age Cohort					
< 12 months old (born in SFY 2007)	2956	0	0	14,706	103,035
1 year old (born in SFY 2006)	0	3,215	32,319	10,699	116,348
2 year old (born in SFY 2005)	0	2,123	22,640	6,517	70,740
Race/Ethnicity					
White, non-Hispanic	596	684	6,431	6,234	54,920
Black, non-Hispanic	741	911	9,101	4,485	39,265
Hispanic	1,475	2,530	26,473	18,932	173,883
Other/Unknown	144	1,213	12,954	2,271	22,055
Service Delivery Type/Area					
FFS	1,183	2,793	29,703	14,317	133,834
PCCM	582	743	7,557	5,437	48,154
Managed Care	1,191	1,802	17,699	12,168	108,135
Bexar	173	150	1,323	1,699	14,217
Dallas	221	383	3,919	1,930	16,822
El Paso	68	100	1,036	581	5,463
Harris	399	455	4,405	2,983	26,657
Lubbock	57	42	432	284	2,424
Nueces	62	78	764	801	6,881
Tarrant	149	386	3,855	2,681	24,502
Travis	62	208	1,965	1,209	11,169
Total	2,956	5,338	54,959	31,922	290,123

^{*} Denominator 1a = Clients age 0 to 12 months who are enrolled in Medicaid at birth and continuously for at least twelve months, who were identified as having a birth weight under 1500 grams.

[†] Denominator 1b = The total member years (sum of months enrolled during SFY 2007, divided by 12) of clients age 13 to 36 months, who were identified as having a birth weight under 1500 grams.

[‡] Denominator 2 = The total member years (sum of months enrolled during SFY 2007, divided by 12) of clients age 0 to 36 months who are identified as having a diagnosis that would qualify them for ECI.

Developmental Assessment Data

Administrative claims and HMO encounters data were used to identify health care visits in which services related to developmental assessment were obtained. The use of developmental screening instruments of a limited scope (such as Developmental Screening Test II, Early Language Milestone Screen, PEDS, Ages and Stages, and Vanderbilt ADHD rating scales) is reported using CPT code 96110. Extended developmental testing using standardized instruments (such as Bayley Scales of Infant Development, Woodcock-Johnson Tests of Cognitive Abilities (Third Edition) and

Clinical Evaluation of Language Fundamentals (Fourth Edition)) are reported using CPT code 96111. Developmental assessments were provided to Medicaid clients on 8,368 occasions in SFY 2007, and on 10,681 occasions in SFY 2008.

Table 9.2: Frequency of developmental assessments, as reported in the Texas Medicaid Administrative Claims and HMO Encounter Data - Texas Medicaid, SFY 2007-8

	CPT Code =96110	CPT Code =96111	Total
SFY 2007	7,149 (85.4%)	1,219 (14.6%)	8,368
SFY 2008	9,250 (86.6%)	1,431 (13.4%)	10,681
Total	16,399 (86.1%)	2,650 (13.9%)	19,049

Study 1: Risk Category = Very Low Birth Weight Births

Administrative claims and HMO encounters data from SFY 2007 and 2008 were examined to determine the number of infants from denominator 1a who received developmental assessments before their first birthday. The presence of procedure codes 96110 and/or 96111 indicated a developmental assessment was performed. If more than one developmental assessment was received, the child was counted only once and the CPT code for the earliest date of service was selected for reporting in the numerator (Table 9.3).

Administrative claims and HMO encounters from SFY 2007 only were examined to determine the number of children from denominator 1b who received developmental assessments in SFY 2007. The total number of months enrolled was derived from the 8-month enrollment file. The presence of procedure codes 96110 and/or 96111 indicated a developmental assessment was performed. If more than one developmental assessment was received by the same client, each assessment was counted individually (Table 9.4).

Study 2: Risk Category = Early Childhood Intervention Cohort

Administrative claims and HMO encounters data from SFY 2007 only were examined to determine the number of infants from denominator 2 who received developmental assessments in SFY 2007. The total number of months enrolled was derived from the 8-month enrollment file. The presence of procedure codes 96110 and/or 96111 indicated a developmental assessment was performed. If more than one developmental assessment was received by the same client, each assessment was counted individually (Table 9.5).

Table 9.3: Study 1a – Total number of Medicaid VLBW infants[†] born in SFY 2007 and the number who received a developmental assessment before their 1st birthday – Texas Medicaid, SFY 2007-2008

	Number of VLBW infants [†]	Number and percent VLBW infants receiving developmental assessments			Type of assessment	
		Total	%	Before 1 st birthday	CPT = 96110	CPT = 96111
					n	n
Race/Ethnicity						
White, non-Hispanic	596	16	*	11	8	8
Black, non-Hispanic	741	15	*	10	10	5
Hispanic	1,475	29	*	21	17	12
Other/Unknown	144	4	*	1	2	2
Service Delivery Type/Area						
FFS	1,183	33	2.8	23	18	15
PCCM	582	10	*	6	7	3
Managed Care	1,191	20	*	14	12	9
Bexar	173	1	*	0	0	1
Dallas	221	4	*	3	4	0
El Paso	68	0	-	0	-	-
Harris	399	5	*	4	1	4
Lubbock	57	5	*	2	1	4
Nueces	62	5	*	5	5	0
Tarrant	149	0	-	0	-	-
Travis	62	1	*	0	1	0
Total	2956	64	2.2	43	37	27

[†]Includes only infants born in SFY 2007 (between 9/1/2006 and 8/31/2007) who were enrolled at the time of birth and who were continuously enrolled for at least 12 months.

* = not reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Table 9.4: Study 1b – Months enrolled for THSteps clients, ages 1 and 2 in SFY 2007, who were identified as having had a very low birth weight (VLBW) and the number of developmental assessments provided in SFY 2007 – Texas Medicaid, SFY 2007

	Annualized Enrollment Months SFY 2007	Number and percent of developmental assessments provided in SFY 2007		Type of assessment	
		Total	%	CPT = 96110 n	CPT = 96111 n
Age Cohort					
1 year old (born in SFY 2006)	2,693	80	3.0	66	14
2 year old (born in SFY 2005)	1,887	25	*	13	
Race/Ethnicity					
White, non-Hispanic	536	28	*	23	5
Black, non-Hispanic	758	9	*	6	3
Hispanic	2,206	45	2.0	34	11
Other/Unknown	1,080	23	*	16	7
Service Delivery Type/Area					
FFS	2,475	43	1.7	33	10
PCCM	630	30	4.8	26	4
Managed Care	1,475	32	2.2	21	11
Bexar	110	1	*	1	0
Dallas	327	16	*	10	6
El Paso	86	0	-	0	0
Harris	367	5	*	1	4
Lubbock	36	0	-	0	0
Nueces	64	7	*	7	0
Tarrant	321	3	*	2	1
Travis	164	0	-	0	0
Total	4,580	105	2.3	79	26

* = not reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Table 9.5: Study 2 – Months enrolled for THSteps clients less than age three in SFY 2007, who were identified as having a diagnosis that would qualify them for ECI and the number of developmental assessments provided in SFY 2007 – Texas Medicaid, SFY 2007

	Annualized Enrollment Months SFY 2007	Number and percent of developmental assessments provided in SFY 2007		Type of assessment	
		Total	%	CPT = 96110 n	CPT = 96111 n (%)
Age Cohort					
< 12 months old (born in SFY 2007)	8,586	292	3.4	277	15
1 year old (born in SFY 2006)	9,696	156	1.6	121	35
2 year old (born in SFY 2005)	5,895	77	1.3	31	46
Race/Ethnicity					
White, non-Hispanic	4,577	191	4.2	165	26
Black, non-Hispanic	3,272	26	*	11	15
Hispanic	14,490	256	1.8	221	35
Other/Unknown	1,838	52	2.8	32	20
Service Delivery Type/Area					
FFS	11,153	229	2.1	175	54
PCCM	4,013	40	1.0	31	9
Managed Care	9,011	256	2.8	223	33
Bexar	1,185	57	4.8	55	2
Dallas	1,402	83	5.9	77	6
El Paso	455	0	-	0	0
Harris	2,221	7	*	2	5
Lubbock	202	0	-	0	0
Nueces	573	31	5.4	30	1
Tarrant	2,042	63	3.1	47	16
Travis	931	15	*	12	3
Total	24,177	525	2.2	429	96

* = not reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.